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ABSTRACT

Discussed is a paradigm for special education diagnostics of Area 1 or cognitive functioning as related to the Structure of Intellect (SOI) model. Research is reviewed and several individual profiles are provided to illustrate the method of curriculum planning from individual SOI profiles. It is concluded that the paradigm offered may help to avoid continuation of inadequate diagnosis in the schools. Also provided are figures of the SOI and various SOI profiles. (SB)

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A PARADIGM FOR SPECIAL EDUCATION DIAGNOSTICS: THE COGNITIVE AREA

Paper delivered to BEH Sept 74, from "State of the Arts"

Mary Meeker

As educational psychology emerged from its parent sciences, psychology and education, a very fine type of twinning* occurred. Educational psychology, as taught in universities, has concerned itself with learning curves, animal responses to stimuli, perceptual data and galvanic skin responses. This is particularly the case when educational psychology has been relegated to the department or school of psychology, neither of which is usually oriented toward the application of psychology to education. Thus, this fairly new soft science, educational psychology, has been added to the curriculum and, consequently, has been and is still being taught in a traditional and therefore, theoretic manner for the most part. This is ironic since the essence of educational psychology, if it has any standing apart from traditional psychology, is that it is an applied science–knowledge applied from psychology for children in an educational system.

School psychology and school psychologists, in particular, primarily are concerned with the application to education of knowledge from the many disciplines within psychology and educational psychology to the learning situation, the learner and the teacher. In the real world of education, however, the curriculum person generally has taken the responsibility for what is taught (content) and since cirriculum specialists are concerned with all children, curriculum has been kept intact as a body of knowledge to be taught somehow to children in special education. Yet special education came into being to answer individual children's needs.

Perhaps the major problem all teachers face is that problem of understanding or attempting to understand individual learners, groups of learners, types of learners, as well as teachers' own reactions to these learners. Where do they go for this understanding? They cannot go to curriculum specialists. I think it is safe to say curriculum specialists and teachers are rarely trained to know the child, his development, his needs, strengths, and weaknesses. It would seem that educational or school psychology should offer the best information available and so most teachers who attempt to learn about these students (those who depart from something called, "the norm") often return to college to study 'exceptional children', a course which is typically concerned with deviant behaviors: learning, social and psychological.

But the observant teacher, the sensitive psychologist and the aware parent know that all children differ; not just those earmarked for special education: they differ within the same family, within the same grade level and the same age level; and they do most certainly differ in their learning aptitudes when they show identical IQ scores. They may be average, retarded, gifted, physiologically impaired, disturbed.

*Twinning is a psychiatric term describing the process during or following mitosis wherein the mirrored parts of the body develop.

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Therefore, whether the differences are exceptional ones or not becomes a fine point of debate in the semantics of education. It may be such a fine point that it is best settled by professor-philosophers who are in training institutions and who must determine what the subject matter of any given course is. The teacher, the parent, the school psychologist or anyone who plans for, handles or is responsible for the child must understand each child and the differences within his own parameters, normal or exceptional, regardless of what the training institution determines the course matter should be.

There is no system at present which orders these differences found among normal school children–no classification system specifically developed to describe the many characteristics one finds among types of normal children who need individualized attention and curriculum in the schools.

For the severely exceptional child, however, there are several ordering schema[1,2,3] available for medical diagnosis. One system developed in the United States by the American Medical Association is the Standard Nomenclature.[1] Any system seeks to serve the purpose of encompassing as broad a description about a type of diagnosis as is possible. A less broad system, (for international statistical reporting and study of groups of cases) developed by World Health Organization is called the International Statistical Classification.[2]

There has not been a demand for a system of classification specifically oriented for use by school personnel to understand all school children. We can draw this analogy: The medical association saw a need for a standard nomenclature in which medical diagnosis for treatment necessitated a medical etiology describing symptomatology of types of illness. The analogy, for education lies in the fact that if classifications for purposes of instruction continue to be tied to legal and legislated assignment of funds for instruction, and if this national movement toward non-labelling continues, then, educational psychology will also need a classification scheme which is tied to treatment.

Nevertheless, all children in schools, whether placed in special education programs or not, do, at times, need some special instruction specifically prescribed for their uniqueness. A portion of this paper describes a model which may be used for development of curriculum to be described in three major areas of growth. Within each of these areas and within the established or expected norms, all students will differ. To the extent that they do, this information needs to be known so that assessment and evaluation procedures can be developed to allow educators to plan instruction for their individual differences.

Such information about any child needs to be assessed by the school psychologist, and communicated to the teacher and the parents who cannot usually gain the information on their own.

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[1] Standard Nomenclature of Diseases and Operations, 4th Edition, (Philadelphia: Blakistone Company, 1952).

[2] Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, (Geneva, Switzerland, 1948).

[3] Committee on Child Psychiatry-Group for the Advancement of Psychiatry, Psychopathological Disorders in Childhood: Theoretical Considerations and a Proposed Classification (New York: Publications Office, Croup for the Advancement of Psychiatry, June 1966), Vol. VI, Rep. No. 62.

In the course of training school psychologists who for the most part were once teachers and most of whom are also parents, I found it necessary to develop a system for helping psychologists understand the total system or functioning of any one child. We've all learned the concept that the sum of the parts is greater than the whole. Therefore, the components of each of the three parts (areas), if separately tested for, will show that children will differ.

If we look at the child (or anyone) as a whole person (system) functioning within his or her own capacity, we can diagram the functions by separating them into three major areas. And by doing so, we can chart individual differences. This system will allow labelling or classifying as an educational typology to be replaced by assessment of areas for the purpose of individualized instruction regardless of label or category.

Area 1 functioning, the primary topic of this paper, is defined by intellectual, academic, linguistic and speech differences. Academic functioning is, of course, measured by school achievement–grades and achievement tests. Intellectual functioning characteristics are measured by intelligence tests which differ in terms of the mode of testing (group of individual) and in terms of differential measures (general intelligence or specific intellectual abilities).

Research since 1963 which has based academic functioning on intellectual abilities as re-defined by the Guilford Structure of Intellect (SI) model and applied by Meeker (SOI) indicates that academic achievement very often hinges upon the special kinds of intellectual abilities needed for that particular kind of achievement, (Meeker, M. 1963; 1966; Wilson, M. 1969; Feldman, B. 1970 and many others). Thus, Area 1 Functioning in achievement depends a great deal upon intellectual strengths or weaknesses. There are group tests which assess achievement and there are individual tests which give even more precise information. Since the ability to comprehend and use language also underlies the ability to achieve in school, these skills and functioning fall into Area 1.

Assessment of these functions in Area 1 is necessary for systematic planning of individualized or group instruction whether for exceptionals or normals who differ. The use of such a model as the paradigm in the training of educators gives to those so trained (1) the ability to perceive where children function differently within the three areas. (2) Delineates tests for specific information; (3) gives the educator a firm basis for true individualized prescriptions.

I shall briefly describe Area II and III functioning before covering the Area I functioning within which the SOI falls.

Area II functioning is often called the affective functioning of the person in contrast with Area I which is referred to as cognitive functioning. But affective functioning is more than single emotional characteristics. In Area II, we see the other components which underlie the affective; that is, the environment (which differs for all children), social skills, social and peer acceptance, personality, character and motivation. There is no mention in Area II of spiritual or moralistic values primarily because this is a paradigm used for training psychologists and parents to understand children based on testing or observational procedures. Yet spiritual and moralistic values belong in, and underlie, Area II functioning. Enlightened interpretation of social adjustment and personality characteristics when tested by means of projective testing can lead to better programs for any child whose Area II functioning needs

strengthening. But school psychologists who have learned to interpret projective tests only in terms of dynamic or psychoanalytic theory are often led to make such distorted conclusions that they have earned for themselves the reputation of producing little that is helpful to the teacher or parent. There are other kinds of information forthcoming from testing and observations in Area II and these are used to separate out of the affective area the specifics of what we generally term emotional overlays. The paradigm gives us a clear cut strategy for peeling the overlays. Any program in special education must include remediation based on observations and test interpretation of Area II functioning.

Area III. The physiological factors: Psycho-motor, perceptual-motor, physical maturation, nutrition and neurological variables differ among all of us. Each aspect of functioning in Area III needs to be assessed and acted upon should any differences occur. Therefore, minimally or major brain damaged children or gifted or so called average, or disturbed or poor readers, or whatever label one wants to attach to a student, all need assessment in this area before a program so sophisticated as to include academic material is superimposed on the child. It becomes obvious that a child whose environment is so poor that he is malnourished or lacks nutrition, as well as the child whose body is allergy-prone or does not assimilate that which it ingests is in just as much need for Area III planning and remediation as the cerebral palsied child who requires special class placement because of an inability to coordinate. Care in Area III is most basic for expected academic achievement. And since it is, teachers, parents and psychologists need to know when to recognize the necessity for a medical or modern nutritional referral before superimposing academic curriculum.

To ask which area is primary or most important is sort of like asking whether the seed, the roots, the stem or the foliage is most important to the plant. Obviously all are important and each important in a different way.

Thus a gifted youngster may need special planning in Area II or III rather than in Area I, as might a retarded or other kind of student. And most certainly, the heavy responsibility and expectations of Area I achievement to the exclusion of all other functions becomes most apparent in its short sightedness.

To clarify how interwoven these functions are and how there is crosscausation and cross-symptomatology, the following game makes clear the interrelationships between any one of the functions in all three areas.

Figure 1-1b

A GAME: HOW TO FIND THE SUM OF THE PARTS*

(For Parents and Other Educators)

INSTRUCTIONS: On the right side of the page and on the left side of the page, you will find some characteristics. Take each one in turn and ask this question: Does this characteristic affect that one? If you think it does then draw a line with an arrow pointing to the ones it affects. Do this for each characteristic on each side. Begin with the first characteristic at the top of the right column.

PSYCHOMOTOR SKILLS	INTELLECTUAL ABILITY
SOCIAL DIFFERENCES	ENVIRONMENT
EMOTIONAL ADJUSTMENT	MOTIVATION
ACADEMIC ABILITY	NUTRITION
ENERGY LEVEL	PHYSICAL MATURATION
SPIRITUAL VALUES MORAL VALUES	
LANGUAGE FUNCTIONING	

*From Meeker, M. Your Gifted Child, Creative or Stressed. In Press

If the reader has played the game, there are several conclusions to be made:

1. A turn of the page so that the top now faces on the left and the drawing of lines between the characteristics appearing at the top of the page will reproduce the paradigm.

2. The inter-relationships are over-whelming.

3. We may speculate that the lines of connections themselves may be capturing the elusive intervening variables so long discussed.

4. That the planning for any specific section or function will have much greater effects than are at first apparent.

5. That we most certainly need to be more specific in our diagnosis and remediation or planning.

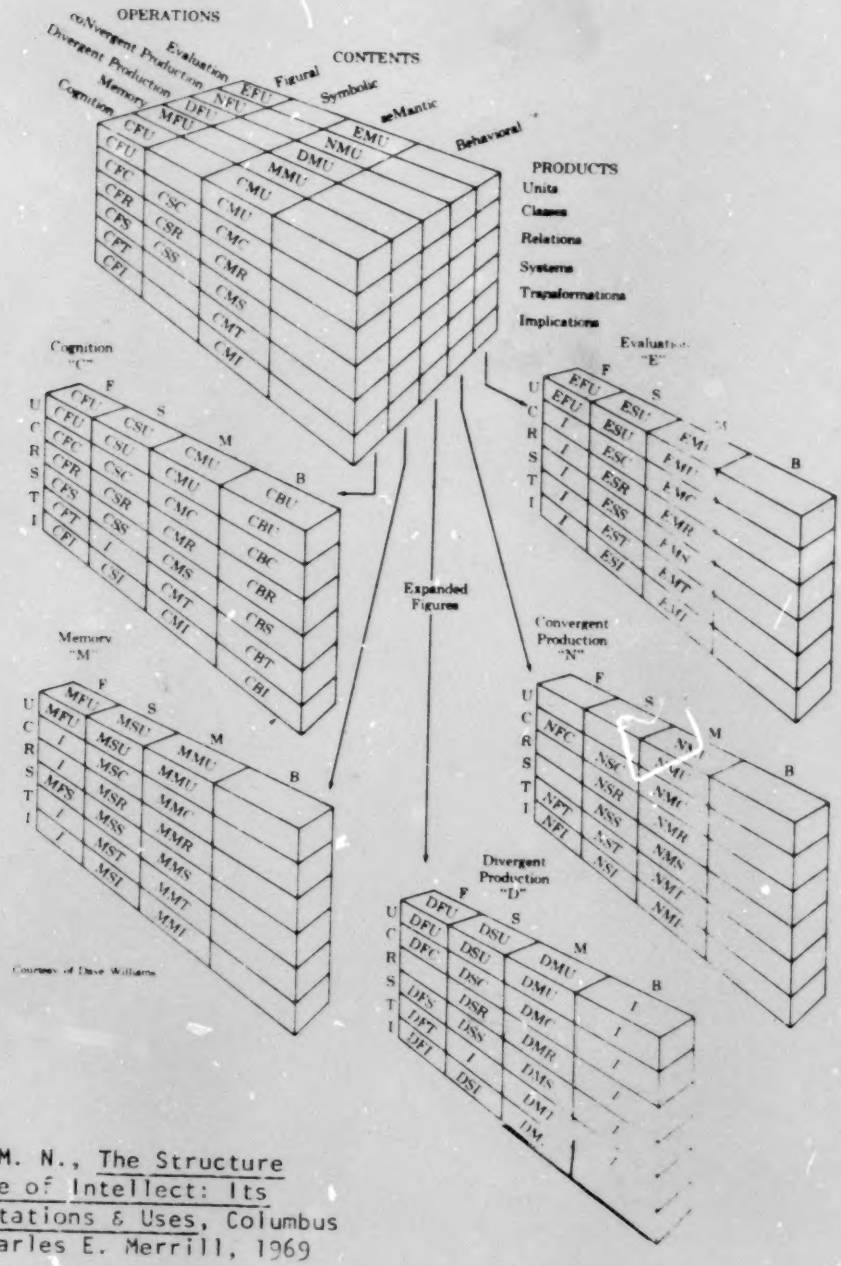
6. That we may be doing a great deal more for any child if such a system for testing, diagnosing and planning is used, and targets for curriculum are acted upon.

7. We can understand why children differ so much.

All of us like to know something about ourselves, so in the appendix (see Appendix A) there is a short questionnaire which will give you some indication about your own functioning in the three areas.

AREA I. ACADEMIC, INTELLECTUAL AND LINGUISTIC FUNCTIONING

Figure 1-1d
STRUCTURE OF INTELLECT



Meeker, M. N., The Structure Structure of Intellect: Its Interpretations & Uses, Columbus Ohio: Charles E. Merrill, 1969

Note: The ideas basic to the structure of intellect theory (SI) were formulated in the late 1950's through the factor analysis of many test responses of college males.

The ideas basic to the structure-of-intellect theory were formulated in the late 1950's, and, through the factor analysis of many tests, were successively refined until the present model was formulated. The model is a three-way classification of intellectual abilities designed to encompass and organize intellectual aptitude factors.

REVIEW OF RESEARCH:

To my knowledge no theorist had proposed that just as there are emotional overlays there may also be cognitive overlays. Let me explain:

If we assume that the core of cognitive functioning is composed of intellectual abilities and that there are certain specific abilities which are a necessary part of a child's learning repertoire if he is to handle academic subject matter, then certain intellectual abilities must be foundational to academia; they form the core around which higher cognitive abilities lay themselves.

We already know that of the 96 Guilford SI abilities found in adults, certain SOI (Meeker's application) abilities have been found to be necessary if learning to read is to occur–(Feldman, 1970, Karadenes, 1971) and that certain intellectual abilities are necessary for Math and English (Meeker, 1966).

My own research began in 1962 when in an attempt to base the Binet and WISC on a theory of intelligence for purposes of curriculum planning, I analyzed items in these tests and assigned them to the Guilford factors. At that time, no one had established that these factors also were found in childrens' responses.

With Guilford's encouragement, I developed templates to translate test responses of Binets to the SI Model, but in order to make these factors known, I had also to find a way to make an SOI Profile. I did this by slicing the cube apart. (Meeker, 1963)

The first public documentation was presented at APA, Philadelphia, 1963. The next formal paper was published in the Journal of Special Education, under the sponsorship of Marcella Bonsall and T. Ernie Newland in 1964. Some interest was generated in a few theorists and doctoral candidates, and as a result, these things occurred: The explosion of a Binet IQ score into components of a theory of intelligence; the suggestion that IQ tests could become diagnostic; and, the assumption that intelligence could be trained.

Charles Silberman in Crisis in the Classroom stated: "The child who is beginning school today will still be in the labor force in the year 2030. We cannot imagine what his work will be, therefore, we must teach him how to learn." Educators began to consider the need to teach more than academic subject matter which is, incidentally, defined as one kind of operation, Convergent Production.

The inadequacy of a general index of intelligence is apparent if no use is made of it other than a number placed in a folder. Nonetheless, instruments of general assessment will not be quickly or easily displaced in the school context for two reasons: First, the instruments are familiar to practitioners and they are, undeniably, statistically sound. Until there is, a practical substitute for the Binet and WISC; that can be used within the limits of time and personnel that are normally allocated to testing, general intelligence instruments, will find continued use as long as there are no practical specific-abilities tests available, for school students.*

The Binet and the WISC have very limited diagnostic utility when reported as IQ scores and thus have offered little guidance for prescriptive treatment for special education, minority, ethnic, or any other children. As a practical and interim remedy for this situation, the Meeker (1963-1969) method for using Binet (or WISC) responses to derive differentiated assessments of samples of intellectual responses has given us much information regarding individual and group intellectual abilities.

The Binet-SOI analysis (Meeker, 1963) was derived for several purposes and is based on several assumptions, chief among which are: That intellectual abilities underlie the learning of subject matter and that with practice, intellectual abilities can be developed just as academic skills can, if a diagnosis of those abilities can be made based upon the rooting of the Binet and WISC on a theory or model of intelligence. The responses from each standardized test would present the most reliable and valid material for the purpose of identifying individual responses. This method has been used extensively in studies by Meeker (1963, 1965, 1966, 1971), Feldman (1970), Brown (1971), Karadenes (1971), Hays & Pereira (1972), and Manning (1973).

Meyers, Dingman and Orpet in 1964 found that certain SI factors were identifiable in young normals and retardates. Orpet and Meyers, in 1966, and Sitkei, 1966 found additional factors in young students. During that time Rachel Ball in an heroic attempt, factored every infant test in existence for use. She and Stott were able to identify many of the SI factors in test responses. This particular work is one of the most definitive of the SI background research, but unfortunately, it is not available except perhaps through Dr. Ball who lives in Tempe, Arizona.

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*The SOI Learning Abilities group test will predict whether students have the necessary intellectual abilities for learning reading and arithmetic.

In 1972 Ball continued research on the effect of environment and parent education level on black and white pre-school children. This work was supported by a grant and the earlier reports are not cited here. However, her latest research is summarized as follows:

Ball's research included 1,947 retested five-year-olds and 255 other white five-year-olds. In addition, 211 black five-year-olds were tested, most of them by black examiners. All of the children were chosen to conform with the earlier studies by having approximately one-fourth with mothers having graduated from college, one-half with mothers who were high school graduates, and one-fourth with ninth grade education or less. (Ball, R., 1972)

Ball found that when the two groups were combined, the factor analyses yielded two clear factors and two less distinct–Factor 1 is divergent semantic thinking and Factor 2 is convergent figural. Factor 3 is cognitive reasoning and Factor 5 carries a sense of psychomotor involvement.

* Fifteen percent of the variance in Factor A can be attributed to race, much less with Factor B and reversed with Factor E, so that, in the figural cognitive aptitudes black children outperform white children.
* The figural Factors B and E are positively related to age.
* Boys had higher means than girls in Factor A while sex seems unrelated to B and E.
* Education of the mother is a contributor to all three factors except for Factor E in black children.
* Age is more effective for spatial abilities than for language.
* Race is more effective for language based performance than for spatial relations.
* White children with higher scores seem to have more permissive, more concerned homes.
* Black high performing children seem to have highly structured homes with concerned striving adults.

Of all the tests used and analyzed in the study of intellectual functioning of galactosemic children at Children's Hospital, Los Angeles, the most distinct differential findings between treatment groups was found when templates for SOI factors were used. The significance of finding a single instrument for analyzing differences in intellectual functioning cannot be touted too strongly. (Nye, 1973)

Interpretation of findings of her study must be made according to the criterion described and the population from which the sample was selected. A summary of her findings follows: (Graphs are available upon request.)

1. Those children placed on a galactose-free diet at birth (T.G. I) have significantly higher levels of intelligence than children who had the dietary treatment initiated after having ingested galactose for any length of time prior to diagnosis (T.G. II).

2. Those children whose dietary treatment was initiated between three days of life and one month of age have the lowest levels of intellectual functioning as compared to children whose dietary treatment was initiated at birth and to children whose dietary treatment was initiated between one month and eleven months of age.

3. The weakest ability as defined by the SOI factors is Transformations for all galactosemic children regardless of the age when the dietary treatment is initiated.

4. Those children placed on a galactose diet at birth (T.G. I) function significantly better on the factors of Implications and Divergent Production than those children who were placed on a galactose diet between three days of life and one month of age (T.G. III).

5. Those children placed on a galactose diet between one and two months of age have the most flat profile of SOI abilities indicating no outstanding strengths or weaknesses.

6. Those children whose dietary treatment was initiated between three days of life and one month of age have the most scattered profile of SOI abilities indicating a widely uneven development of cognitive skills with certain abilities more superior than others.

The above findings are limited to a specific population and to a very specific disorder.

Perhaps the most efficient way to explain the method of curriculum planning from an individual SOI Profile is to look at several individual profiles.

PROFILE NO. 1

This girl was referred for testing in accordance with district policy because the teacher recommended retention in 2nd grade. Cause for retention was the child's inability to do first or second grade arithmetic.

Note the failures (minuses) in the symbolic (2nd vertical) column. The child was unable to perform any arithmetic tasks. Convergent Production (the school block of abilities) is a comparatively low intellectual ability, although her comprehension (cognition) is extremely high. Such a pattern of strengths and weaknesses is accompanied with very poor memory responses, although she read at grade level.

SOI planning and curriculum remediation was instituted as it related to her weaknesses. The girl is now one year beyond grade level in math.

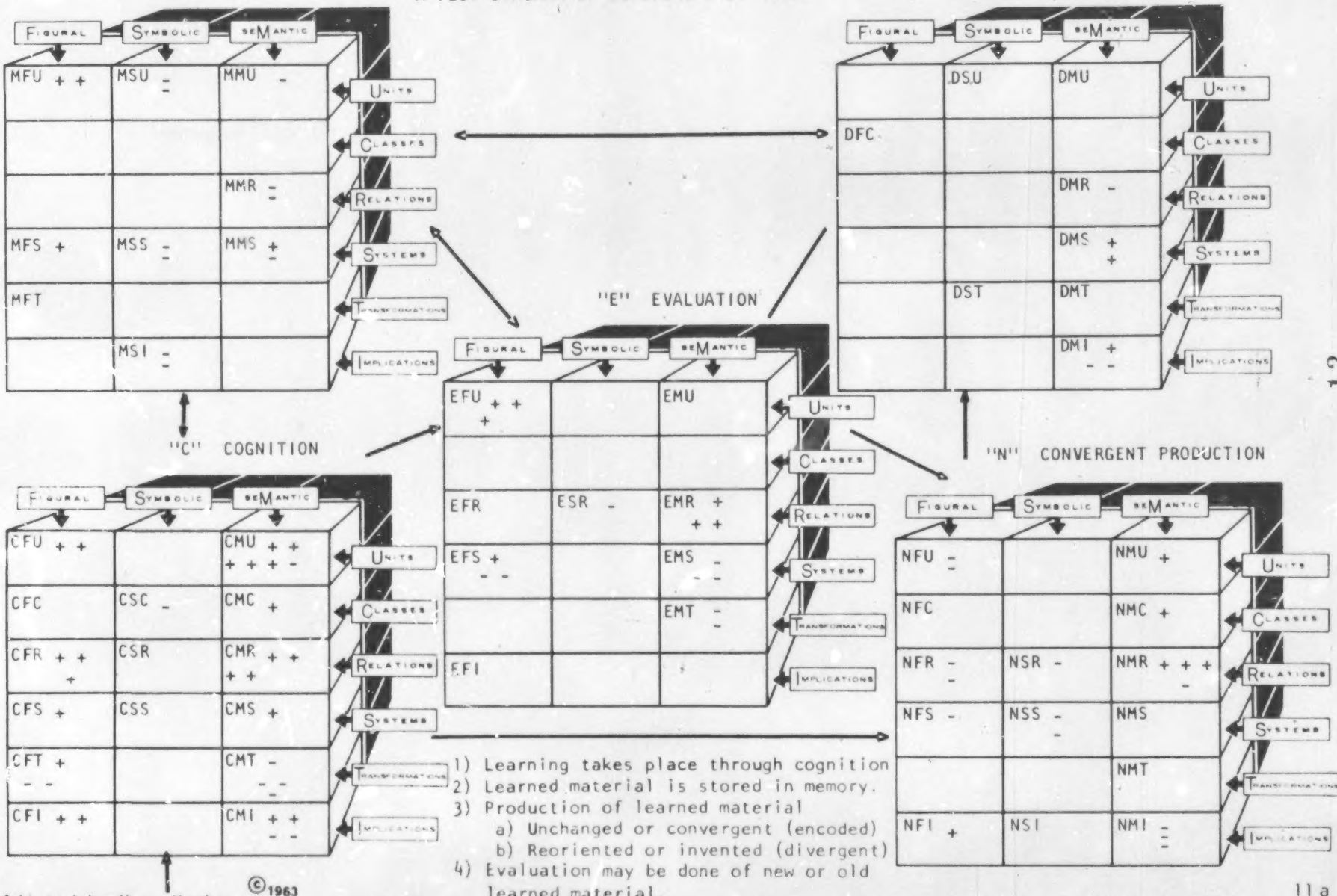
PROFILE #1

PROFILE AND TALLY SHEET FOR STANFORD-BINET LM
SOI TEMPLATES

Child's Name Girl, gifted
Basal _____ Ceiling _____ IQ ___ CA ___
Over 170

STRUCTURE OF INTELLECT PROFILE

SOI Profile
A FLOW DIAGRAM OF GUILFORD'S SI MODEL



1) Learning takes place through cognition
2) Learned material is stored in memory.
3) Production of learned material
   a) Unchanged or convergent (encoded)
   b) Reoriented or invented (divergent)
4) Evaluation may be done of new or old learned material.

Adapted by Mary Meeker ©1963

11a

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Specific tasks from the workbooks were: CFU-MFU-MSU-MMU presented in that sequence so as to present easy tasks contiguous with difficult ones. All Divergent Production Tasks were given to increase self-confidence. It is the nature of Divergent Production that the open-ended, non-value laden tasks increase feelings of success and inner locus of control.

Finally all Evaluation of Semantic Tasks were administered and finally the Piaget section of Convergent Production.

Profile # 1 goes here

page 11a

PROFILE NO. 2

Profile No. 2 is a group profile of 33 Mexican American boys, disadvantaged, aged 4.9 - 5.9 who have had no pre-school experience. (Meeker & Meeker, 1973) I.Q. range was 77-123 with a mean of 95.

The L stands for a significantly poor ability in those cells in which an L appears.

Memory responses are poor enough that specific memory training should be a prominent part of the K - 1st grade curriculum. Although the SOI Analysis was designed as a means of getting away from group averages, the significant patterns may represent trends.

We know the memory is the most critical ability in learning school subject matter.

Another point for discussion is this:

Low Evaluation of Semantic Systems and Transformations is crucial for understanding social nuances. Therefore, M.A. boys entering school should be prepared in these abilities, too. (See Mark Karadenes' Study for additional information) Examples of materials which will teach these abilities follow:

PROFILE NO. 3

Those blacks on the profile where no H or L is filled in are abilities in which the Mexican-Americans (Spanish speaking) were tested but for which there was no significant weakness or strengths. For the purposes of planning curriculum, therefore, we would attend only to those abilities which have significance.

Since there are such pronounced strengths in all Figural Operations, we would predict greater success in school learning if a great portion of the day were spent learning school subject matter through figural inputs.

The low Memory responses would need special attention and repeated lessons which are fun ways to develop their memory.

Low EMS and EMT responses may well reflect cultural or folkway differences.

There are other profiles for groups of disadvantaged blacks, whites, and Mexican-Americans, aged 4-5 and 7-9.

PROFILE NO. 4

Disadvantaged 4 to 5 year old blacks do not show the within group strengths in the figural dimension. They show a decided weakness in Symbolic Thinking. That is, they are not prepared by the preschool environment for handling numerical concepts. Therefore, the Convergent Production Appendix composed of Piaget tasks would be appropriate strategy for them before they are forced into arithmetic procedures. Interestingly, the school experience

PROFILE AND TALLY SHEET FOR STANFORD-BINET LM
SOI TEMPLATES

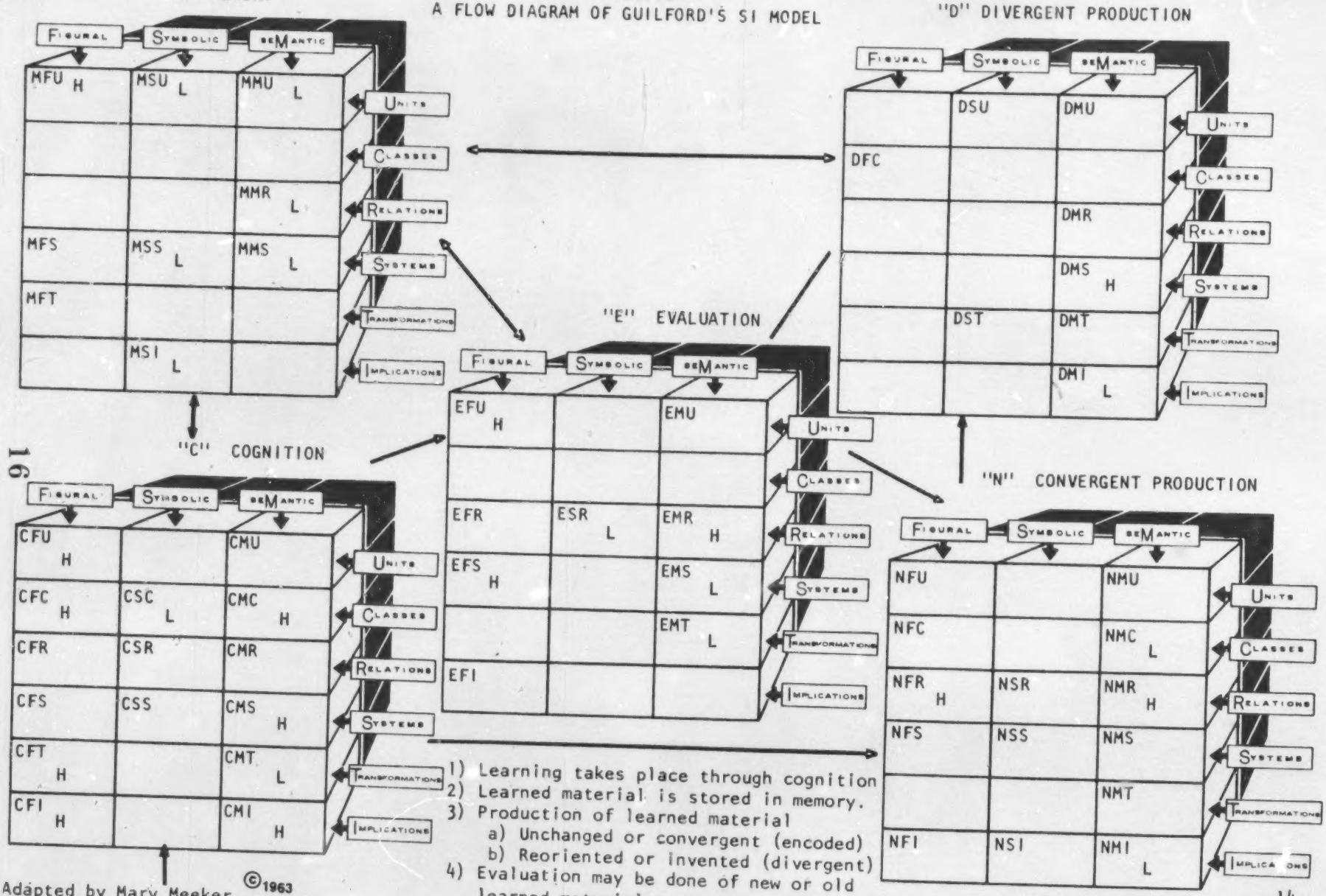
PROFILE #2

Child's Name Group--Mex-Amer. Disadvantagec
Basal _____ Ceiling _____ IQ__CA____

STRUCTURE OF INTELLECT PROFILE

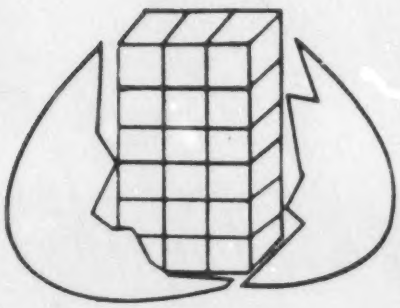
Tested in English

SOI Profile
A FLOW DIAGRAM OF GUILFORD'S SI MODEL



1) Learning takes place through cognition
2) Learned material is stored in memory.
3) Production of learned material
   a) Unchanged or convergent (encoded)
   b) Reoriented or invented (divergent)
4) Evaluation may be done of new or old learned material.

Adapted by Mary Meeker ©1963



SUBJECT: Language Arts

GRADE LEVEL: Bi-lingual

K 1 2 3

MFR - 1

OBJECTIVE: The student will be able to develop the ability to memorize relations between items of figural information.

(MEMORY FOR FIGURAL RELATIONS)

See Exercise Sheet MFR - 1 for pictures.

Animal Matrix Game: Cut a piece of tag board into an 18-inch square. Using a marking pen divide the board into 9 squares. This matrix board will used for both the study and test activities. Now cut 25 six-inch square pieces of tag board. These will be used to paste on the pictures used in the matrix. The following is how the matrix will appear for study:

MATERIALS — INCREASING IN SIZE →

ADULTS	BABIES	WHAT THEY EAT	
CAT	KITTEN	BOWL OF MILK	CAT STORY
DOG	PUPPY	BONE	DOG STORY
HORSE	COLT	HAY	HORSE STORY

Test Matrix Picture Series: bird, baby bird (s) seed; rabbit, bunny carrot; cow, calf, grass; other animal pictures and other items not required to complete matrix.

INSTRUCTIONS

GENERAL: This Matrix Trend Recall task presents a 3 x 3 matrix for study. In each cell is an appropriate kind of figure. A certain relation applies in all rows and another in all columns. The child, having understood the relations, and seeing a starting figure in one cell on the test page, is expected to say what kind of figures should go in the cells. Below the test matrix are 10 figures. The child should place the figures in the matrix in the proper relation as that established in the previously studied matrix. Matrix may be drawn on the floor or playground for repeated game practice.

SPECIFIC:

1. Present the Study Matrix to the child.
2. Ask the child to study all the animal figures and to see how each row is arranged. Note: You may have to explain the relationship of each row and column depending on the needs of the child.
3. Allow the child to study the matrix for approximately 30 seconds.
4. Remove all figures from the matrix board and place only one of the figures in its proper cell as the starting figure.
5. Now give the remaining figures to the child and ask him to place all of them in their proper cells.
6. After the child has mastered this aspect of the task, present test matrix and place one of the figures as the starting figure.
7. Now ask the child to select the figures and complete the matrix.

NOTE: This task will bridge between figural and semantic abilities for readers.

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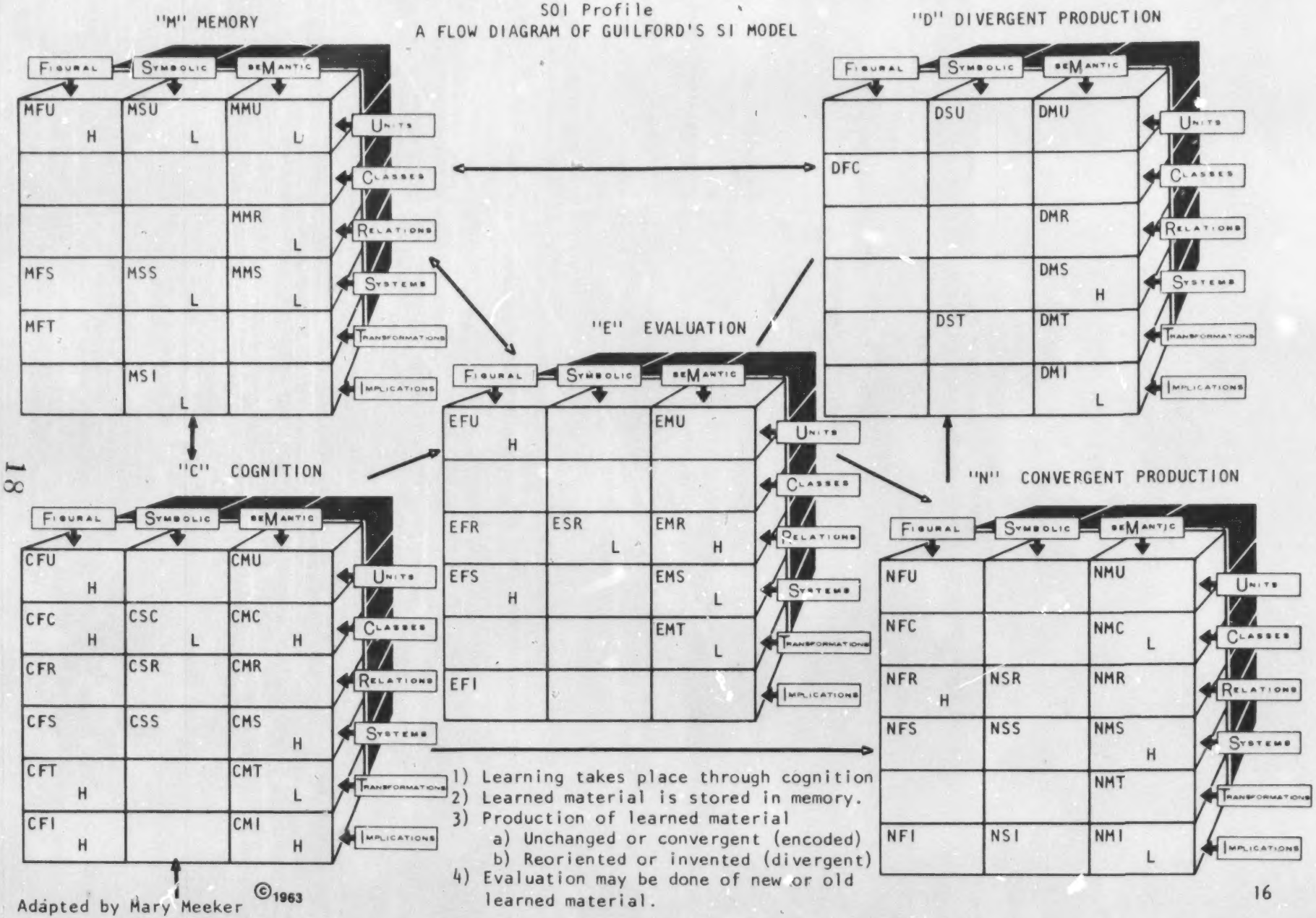
PROFILE AND TALLY SHEET FOR STANFORD-BINET LM
SOI TEMPLATES

PROFILE #3

IQ Range 79-113 N = 37
Child's Name _____
Basal _____ Ceiling _____ IQ ___ CA ___

Mexican-Americans tested in Mexican Vernacular (Calif.)

STRUCTURE OF INTELLECT PROFILE
SOI Profile
A FLOW DIAGRAM OF GUILFORD'S SI MODEL



1) Learning takes place through cognition
2) Learned material is stored in memory.
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4) Evaluation may be done of new or old learned material.

Adapted by Mary Meeker ©1963

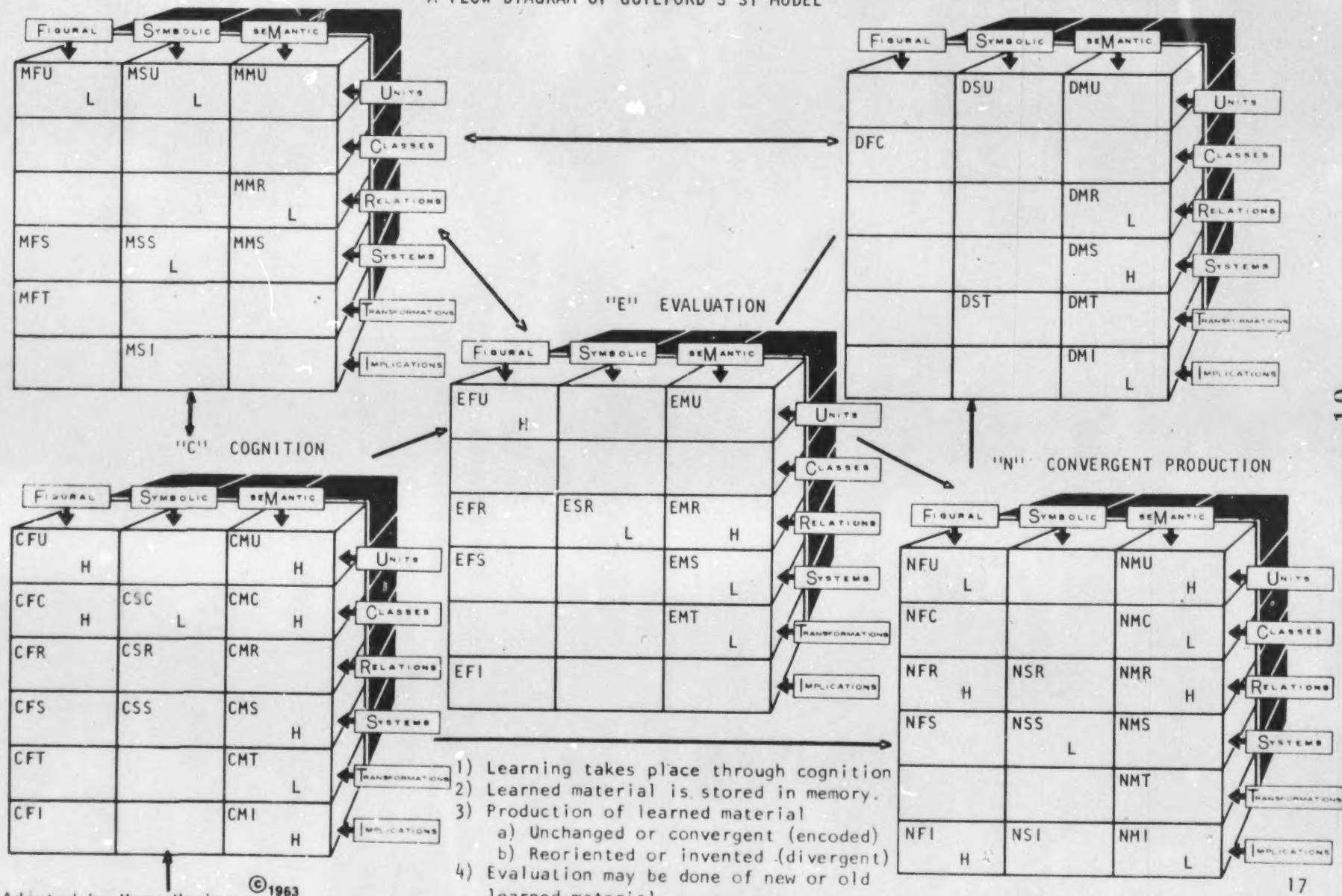
PROFILE AND TALLY SHEET FOR STANFORD-BINET LM
SOI TEMPLATES

PROFILE #4

Child's Name Blacks (boys)Disadvantaged
Basal _____ Ceiling _____ IQ __ CA 4-5

STRUCTURE OF INTELLECT PROFILE Range 78-135 N=31

SOI Profile
A FLOW DIAGRAM OF GUILFORD'S SI MODEL



1) Learning takes place through cognition
2) Learned material is stored in memory.
3) Production of learned material
   a) Unchanged or convergent (encoded)
   b) Reoriented or invented (divergent)
4) Evaluation may be done of new or old learned material.

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PROFILE AND TALLY SHEET FOR STANFORD-BINET LM
SOI TEMPLATES

PROFILE #5

Child's Name Anglos 4-5 Disadvantaged
Basal _____ Ceiling _____ IQ ___ CA ___

STRUCTURE OF INTELLECT PROFILE

IQ Range 80-132
N=33

SOI Profile
A FLOW DIAGRAM OF GUILFORD'S SI MODEL

"M" MEMORY

FIGURAL	SYMBOLIC	SEMANTIC	
MFU L	MSU L	MMU L	UNITS
			CLASSES
		MMR L	RELATIONS
MFS	MSS L	MMS	SYSTEMS
MFT			TRANSFORMATIONS
	MSI		IMPLICATIONS

"D" DIVERGENT PRODUCTION

FIGURAL	SYMBOLIC	SEMANTIC	
	DSU	DMU	UNITS
DFC			CLASSES
		DMR	RELATIONS
		DMS H	SYSTEMS
	DST	DMT	TRANSFORMATIONS
		DMI L	IMPLICATIONS

"E" EVALUATION

FIGURAL	SYMBOLIC	SEMANTIC	
EFU H		EMU	UNITS
			CLASSES
EFR	ESR L	EMR H	RELATIONS
EFS		EMS L	SYSTEMS
		EMT L	TRANSFORMATIONS
EFI			IMPLICATIONS

"C" COGNITION

FIGURAL	SYMBOLIC	SEMANTIC	
CFU H		CMU H	UNITS
CFC H	CSC L	CMC H	CLASSES
CFR	CSR	CMR H	RELATIONS
CFS L	CSS	CMS H	SYSTEMS
CFT		CMT L	TRANSFORMATIONS
CFI		CMI H	IMPLICATIONS

"N" CONVERGENT PRODUCTION

FIGURAL	SYMBOLIC	SEMANTIC	
NFU		NMU	UNITS
NFC		NMC	CLASSES
NFR H	NSR	NMR H	RELATIONS
NFS	NSS	NMS	SYSTEMS
		NMT	TRANSFORMATIONS
NFI	NSI	NMI L	IMPLICATIONS

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does contribute to learning here, for a comparison with a composite profile of 7 to 9 year blacks indicates learned strengths (Meeker and Meeker, 1973), in the Symbolic dimension.

These boys are better prepared in Convergent Production than the Mexican-Americans.

PROFILE NO. 5

Four to five year old disadvantaged anglo boys also show low Memory Responses. One may ask whether, in light of evidence that all of the boys showed weak Memory ability, this is a characteristic of boys or an outcome associated with poverty in general. Etiology aside, Memory can be strengthened, but if this is to happen, then at least twenty minutes a day, three times a week, the schedule must include Memory training.

Hays & Pereira (1972) followed the above procedure with incoming first graders in 1970 in Redondo Beach and trained visual memory only. The children in the experimental group retained gains in reading throughout the next four years.

Gifted children identified as LLD (Learning Disabled) by Margaret Hittits in Lompoc, California Schools and by Gertrude Volk and Harriet Shourd in Clayton, Missouri Schools turned out (when SOI-Binet analyses were made) to be deficient in memory, though their scores indicated Gifted.

Profiles of gifted children in general do not show group patterns. In fact, SOI profiles of any given number of same age, same sex, same score, children are as different as their faces.

SOI profiles of children who score in the retarded range also differ similarly. In fact, one unpublished study by Robert Williams in Tracy, California, studied EMR's who were retarded and whose pre and post SOI profiles were compared. An interesting finding occurred but because of lack of facilities was not documented. The trend seemed to be this: Students whose IQ scores raised above the EMR level had pre-profiles which had one or more dimensional strengths.

Students whose profiles showed scattered plusses and minuses with rather flat Operations', Contents' and Products' accumulated totals had not made increases in IQ score. Not that the raising of a score is a holy feat; it isn't, but when no special academic treatment was given and some students do get out of EMR class placement, then we need to understand what variables may have contributed. We have concluded then that if any SOI strength exists, then we can use this as a beginning point both for strengthening the ability there (for this may have interest and motivational meaning as well as predictable vocational counselling) and for tieing weak abilities to strengths contiguously.

There are two more profiles which we need to discuss: One is that which California calls the E.H., Educationallly Handicapped learner. The other is frequently identified as the MBD, Minimally Brain Damaged.

The E.H. learner has been found to demonstrate Memory failures combined with weak abilities in the processing Units of information. Therefore, some time each day, the curriculum for E.H. children should include tasks to train Memory and Units (all operations).

THE MONDAY-TUESDAY BRAIN DAMAGED CHILD

Here is one example of an MBD child. Mike could not control himself in this 3rd grade class. His aggressiveness had been well-known through all three grades to those teachers who daily discussed their students' behavior problems in the teacher's room. His current teacher didn't know what to do with him. Not only was he disruptive; he banged kids on the head for the pleasure of it. Unprovoked, he would lash out, trip or pummel boys and girls alike so he had no friends. He would not remain in his seat; he would tear up any papers if he did not understand or when he made a mistake on them.

His SOI profile indicated no particular strengths or weaknesses. His score was 117. We concluded that he was what we called a Monday-Tuesday Brain Damaged Child because by Wednesday he had settled in and school provided a secure structure his emotionally-charged home could not. Thus we could rule out Area I problems and look to Area II for understanding.

Research is now ongoing to chart other known Brain Damaged children, dyslexic and aphasias. Margaret Frankl and I are involved in finishing a book covering the 17 aphasias showing SOI profiles where neurological diagnosis has been confirmed.

Sometimes patterns will show up on the accumulated totals graph and sometimes on the raw profiles, but for classroom purposes the individual profiles are the most useful. Workbooks developed for this purpose have been used successfully as have two other teaching strategies we have developed at the SOI Institute. One is an Arithmetic Machine based on Piaget and Guilford constructs.

Then we have an alphabet kit which through the teaching of CFU, CFC, MFU, MFC, EFU, and EFC develop reading and spelling skills.

One last finding, never published, by Lenore McGuire, Miles Rogers and myself concerned Hays-Binet SOI Patterns on blind-from-birth students. With a range of 56 to over 170, those students at Braille Institute, Los Angeles, with IQ's under 140 showed Figural and relational weaknesses. This was not found in students with scores over 140. However, all showed Memory Strengths.

In conclusion, the paradigm offered here may help us avoid continuation of inadequate diagnosis in the schools.

Let me quote a young physician who chose to become a general practicioner. He said, "What would it be like to be a physician and take care of only those people who have no illness? Ponder this: What the educational system is really doing is culling the scholastic achiever as a rancher culls his cattle. The scholar was probably developed in the first 5 to 6

years of life, therefore, the schools are not contributing to his basic development as an achiever. It requires no real talent to teach students who come to school already endowed with the ability to achieve academic success,–just as any physician can doctor people who are already well. Frankly, our society is not blessed with many teachers who are true mentors, because they are not trained to teach, they are trained to transmit the known." (W.S. Nacol, II, M.D., Seymour, Texas.)

There is no question that reform is needed in education. The best indication that this is so is seen when any system begins to break down.

We need to look at the institution of education from the eyes of current knowledge. We need to select from the theory and technology of today to develop an Ecology for Education.